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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

WANG, ALBERT C

ART UNIT	PAPER NUMBER
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2115

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DATE MAILED: 04/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/706,752

Applicant(s)

PADMANABHAN ET AL.

Examiner

Albert Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37-45 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-28 is/are rejected.
- 7) ☒ Claim(s) 5-8 and 29-36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to Amendment A filed February 10, 2004. Independent claims 1, 15, 16, 28, and 37 plus a number of dependent claims are amended. New claim 45 is added. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 4, 9, 15-22, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang, U.S. Patent No. 5,563,891.

As per claim 1, Wang discloses a system for reliably receiving data, comprising:

a memory (Fig. 3, elastic buffer 620);

write logic configured to receive data and an unreliable clock signal and write the data to the memory using the unreliable clock signal (Fig. 3, write data of lower rate signal to elastic buffer using recovered write clock; Col. 2, lines 10-21, clock from lower rate signal is unreliable); and

read logic configured to generate a data enable signal and a gapped clock signal and read the data from the memory using the data enable signal and a constant local clock signal, the gapped clock being generated by turning on and off the constant local clock signal (Fig. 3; Fig.

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4(e); Col. 2, lines 46-60, gapped read clock used to read from elastic memory 620; Col. 3, lines 53-67, logic circuit 645 generates gapped read clock based on justification signal output by justification decision circuit 635 and read clock output by local oscillator 640, justification signal acts as an enable signal for enabling pulses of read clock to be outputted).

As per claim 4, Wang discloses the read logic includes a gapped clock generator configured to generate the gapped clock signal from the constant local clock signal (Col. 2, lines 46-52, gapped read clock).

As per claim 9, Wang discloses the unreliable clock signal operates at a frequency lower than a frequency of the constant local clock signal (Col. 2, line 65-67, “the read clock is faster than the write clock”); and

wherein the read logic is configured to compensate for underflow conditions in the memory by turning off the constant local clock signal and disabling the data enable signal (Col. 4, lines 23-27, reduce or eliminate slips; Col. 3, lines 39-52, when memory level is below a threshold, justification signal is low; Col. 3, lines 53-67, when justification signal is low, read clock is not enabled).

As per claim 15, Wang discloses a system for reliably receiving data, comprising:

means for receiving data and an unreliable clock signal (Fig. 3, data of lower rate signal and recovered write clock; Col. 2, lines 10-21, clock from lower rate signal is unreliable);

means for writing the data to a memory using the unreliable clock signal (Fig. 3, writing to elastic buffer 620);

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means for generating a reliable clock signal by turning on and off a local clock signal (Fig. 3, logic circuit 645 generates clock signal for multiplexer 650; Col. 3, lines 53-67, enable signal enables pulses of read clock to be outputted);

means for generating a data enable signal (Fig. 3, justification decision circuit 635 generates justification signal; Col. 3, lines 53-67, justification signal acts as an enable signal);

means for reading the data from the memory using the data enable signal and the local clock signal (Fig. 3, read-out of data of lower rate signal using gapped read clock based on justification signal and local oscillator signal).

As per claim 16, Wang discloses a method for recovering data, comprising:

receiving data and an unreliable clock signal (Fig. 3, data of lower rate signal and recovered write clock; Col. 2, lines 10-21, clock from lower rate signal is unreliable);

writing the data to a memory using the unreliable clock signal (Fig. 3, writing to elastic buffer 620);

generating a gapped clock signal by turning on and off a constant local clock signal (Fig. 3, gapped read clock; Col. 3, lines 53-67, enable signal enables pulses of read clock to be outputted);

generating a data enable signal (Fig. 3, justification decision circuit 635 generates justification signal; Col. 3, lines 53-67, justification signal acts as an enable signal); and

reading the data from the memory using the data enable signal and the constant local clock signal (Fig. 3, read-out of data of lower rate signal using gapped read clock based on justification signal and local oscillator signal).

As per claim 17, Wang discloses generating an address for writing the data into the memory (Fig. 3, write pointer 115; Col. 2, lines 35-46).

As per claim 18, Wang discloses the generating a gapped clock signal includes:
generating an enable signal having at least two states (Fig. 3, justification signal; Col. 3, lines 53-67); and

turning on and off the constant local clock signal based on the state of the enable signal to generate the gapped clock signal (Fig. 3, with logic circuit 645; Col. 3, lines 53-67).

As per claim 19, Wang discloses determining whether the memory contains data (Fig. 3, with comparison circuit 630).

As per claim 20, Wang discloses the determining includes:
comparing a write address used to access the memory to a read address used to access the memory to determine whether the memory contains data (Col. 3, lines 26-37).

As per claim 21, Wang discloses stopping the constant local clock signal when the memory contains no data (Col. 3, lines 39-52, when memory level is below a threshold, justification signal is low; Col. 3, lines 62-65, when justification signal is low, read clock is not enabled).

As per claim 22, since Wang discloses the system of claim 9, Wang discloses the claimed method.

As per claim 28, Wang discloses a receiver, comprising:
a receiver component (Fig. 3, data pump 650); and

a reliable clock generator configured to receive data and an unreliable clock signal (Fig. 3, write data of lower rate signal to elastic buffer using recovered write clock; Col. 2, lines 10-21, clock from lower rate signal is unreliable), generate a reliable clock signal from a constant clock signal (Fig. 3, logic circuit 645 generates clock signal for data pump 650 from local oscillator), generate a first enable signal (Fig. 3, justification decision circuit 635 generates justification signal; Col. 3, lines 53-67, justification signal acts as an enable signal), read the data from the memory using the first enable signal and the constant clock signal (Fig. 3, read-out of data of lower rate signal using gapped read clock based on justification signal and local oscillator signal), and provide the data and the reliable clock signal to the receiver component (Fig. 3, data and clock provided to data pump 650).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2, 3, 10, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang as applied to claim 1 above, and further in view of Co et al., U.S. Patent No. 5,602,882 ("Co").

As per claim 2, Wang teaches the write logic includes a write pointer configured to generate an address for writing the data into the memory (Fig. 3, write pointer 115; Col. 2, lines 35-46). Wang does not expressly teach the details of a register to buffer the data. Such a

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register is well known in the art. Co teaches such a register (Fig. 3, receive buffer 22). At the time of the invention, it would have been obvious to one of ordinary skill in the art to apply Co's register to Wang's system in order to ensure the integrity of the system.

As per claim 3, Co teaches the memory includes a first-in first-out memory (Abstract, FIFO).

As per claim 10, Wang teaches teaches the unreliable clock signal operates at a frequency higher than a frequency of the constant local clock signal (Col. 3, lines 1-5, "read clock is slower than the write clock"). Co teaches generating a data error when overflow conditions occur (Col. 2, lines 33-38).

As per claim 23 since, Wang/Co teaches the system of claims 1 and 10 and the method of claim 16, Wang/Co teaches the claimed method.

4. Claims 11-14 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang as applied to claims 1, 16, 32 and 40 above, and further in view of Mays et al., U.S. Patent No. 5,384,770 ("Mays").

As per claim 11, Wang teaches the read logic is configured to turn off the constant local clock signal when the write logic receives no unreliable clock signal (Fig. 4, when phase difference is below the threshold, justification signal is low, so that read clock is not enabled), but does not expressly teach starting a counter. Mays teaches starting a counter when no data is received (Col. 11, lines 37-51, timer 17 counts down when no character interrupt signal is received). In Wang when no data is received, no unreliable clock signal is recovered. At the time of the invention, it would have been obvious to one skilled in the art to apply Mays' starting

a time-out counter to Wang's system. A motivation for doing so would have been to limit delays due to waiting for data accumulation (Col. 4, lines 20-33).

As per claim 12, Mays teaches determining write logic has received data before the counter reaches a predetermined count (Col. 11, lines 37-51, character interrupt signal is received before timer 17 reaches zero).

As per claims 13 and 14, Mays teaches determining that the counter has reached a predetermined count (Col. 11, lines 37-51, "timer 17 counts down from a predetermined initial value to zero and produces a time-out signal").

As per claims 24-27, since Wang/Mays teaches the system of claims 11-14 and the method of claim 16, Wang/Mays teaches the claimed method.

Allowable Subject Matter

5. Claims 5-8 and 29-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. Claims 37-45 are allowed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert Wang whose telephone number is 703-305-5385. The examiner can normally be reached on M-F (9:30 - 6:00).

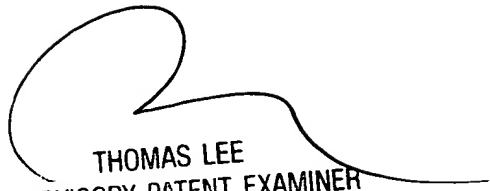
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 703-305-9717. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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